

**APPENDIX 13D. ROADWAY AND SITE DEVELOPMENT--
CONSTRUCTION, OPERATION AND MAINTENANCE STANDARDS**

In order that the various purposes of this chapter be accomplished, all development shall conform with applicable codes, plans and specifications approved by the authority, standards specified elsewhere in this chapter, and the following general construction, operating and maintenance standards:

Sec. D.1. General.

D.1.1. Responsibility for construction. All required physical improvements shall be provided by the developer at no expense to the commission, unless otherwise agreed to by the commission. The developer, and his engineer or architect where applicable, shall be responsible to the commission for the satisfactory construction of all permitted improvements. Except for minor development, all infrastructure improvements (including water and sewer systems) shall be installed under the direction, supervision and coordination of the developer's engineer. He shall have available, when necessary, a qualified survey party for the purpose of setting lines and grades for improvements and an approved testing program using qualified persons. It shall be the responsibility of the developer's engineer to ensure that sufficient surveys, inspections and tests are performed during construction so that the required certification(s) can be provided upon completion of the improvements.

D.1.2. Notification of construction. The developer shall notify the department, in writing, of the intended date for beginning of medium and major development construction, at least five (5) days before actual construction begins.

D.1.3. Quality control.

D.1.3.1. Inspections. The approving authority may inspect all construction of permitted improvements. He is authorized to call to the attention of the contractor any failure of work or materials to conform with the plans and specifications. To secure corrective action, he may bring the failure to the attention of the developer and his engineer/architect. The approving authority may reject materials and work when not in conformity with the approved codes, plans and specifications.

D.1.3.2. Testing. Laboratory or field tests and measurements, for width, depth, stability, density and other performance criteria, are required for all construction, as is normal for the industry. When

required, these shall be made by a duly licensed engineering testing laboratory, at the developer's expense. All test results or measurements not in conformance with the plans and specifications shall be reported to the director promptly, and copies of all test reports shall be submitted to him as they are prepared. Minimum requirements for tests are as specified herein.

D.1.3.3. Certification. Upon completion of medium and major development, the developer's engineer shall submit the following to the director:

- (a) As-built drawings.
- (b) A certificate of completion which shall include a statement that the methods of construction, materials used, and the results of tests and measurements of the project substantially meet the requirements of all applicable codes and the approved plans and specifications.

D.1.3.4. Final inspection. Upon receipt of as-built drawings and certification, the approving authority shall perform a final inspection of the permitted improvements for compliance with all applicable codes and the approved plans and specifications. When the approving authority is satisfied as to the acceptability of the improvements, he shall so notify the commission.

(Ord. No. 96-23, § 9, 12-16-96)

Sec. D.2. Road and bridge standards.

D.2.1. Construction.

D.2.1.1 Introduction. All materials and construction procedures and methods shall, as a minimum, be in accordance with the current edition of Florida Department of Transportation's "Standard Specifications For Road and Bridge Construction", except where herein otherwise provided or authorized by the commission. Types of road construction not specified, but which are equivalent thereto may be allowed by the commission upon recommendation by the county engineer and director of public works.

D.2.1.2. Clearing and grubbing:

- (a) All rights-of-way must be completely cleared and grubbed for their entire width, as directed by the county engineer, according to current Florida

Department of Transportation specifications, unless otherwise agreed upon by the commission. Trash, brush, trees, etc. may be burned within the right-of-way limits provided no local, county, state or federal law is violated.

(b) Removal and disposal of waste material

- (1) Gumbo and clay--Gumbo and other plastic clays shall be removed within the area two feet below the subgrade, or more if soil conditions require it, and such excavation shall extend horizontally to the ditch line. These materials shall be disposed of by the contractor at his expense.
- (2) Muck and peat--Muck and peat shall be completely removed between the outside shoulder lines and be disposed of as directed by the county engineer.

D.2.1.3. Grading. The grade, in a fill section, shall be constructed in six-inch lifts to conform to the desired cross-section. All portions of the roadbed in fill section below the top twelve (12) inches of the subgrade shall be compacted to a density of at least ninety-eight (98) percent of the maximum density as determined by AASHTO Method T99.

D.2.1.4. Drainage.

- (a) *Drainage pipe.* Where methods of drainage using pipe are required, the following standards apply:
 - (1) Road cross-drain pipe.
 - a. Acceptable types--Reinforced concrete.
 - b. Minimum size--Eighteen (18) inches diameter or equal.
 - c. Endwall, inlet manhole or mitered end section with concrete collar required at each end.
 - (2) Roadside drain pipe:
 - a. Acceptable types--Concrete, plain corrugated metal, plain corrugated aluminum.
 - b. Minimum size--Fifteen (15) inches diameter or equal.

- (3) Storm sewer pipe:
 - a. Acceptable types--Reinforced concrete, galvanized corrugated metal or corrugated aluminum.
 - b. Minimum size--Eighteen (18) inches or equal.
 - c. Inlet or manhole required at each change of alignment or grade.
- (b) *Headwalls*. Shall be constructed of concrete or sand-cement rip rap (5:1 mix approved bags)
- (c) *Inlets*. Meet DOT specs.
- (d) *Manholes*. Meet DOT specs.
- (e) *Erosion control*.
 - (1) *Grassing and mulching*. Required on all unpaved areas in the road right-of-way where sodding is not required.
 - (2) *Sodding*. Required on all drainage ditches where the grade exceeds three (3) percent.

D.2.1.5. Subgrade.

- (a) *Material*. The subgrade shall be constructed of material having a minimum bearing value of forty (40) L.B.R. (Limerock Bearing Ratio)
- (b) *Construction*. The subgrade shall be constructed in six-inch lifts to conform to the desired cross-section. It shall be compacted to a density of not less than ninety-eight (98) percent of the maximum density as determined by AASHO Method T 180. The subgrade shall be shaped prior to making the density tests.
- (c) *Width*. The subgrade shall be two (2) feet wider than the base course (one (1) foot each side) and in the case of curb and gutter shall extend six (6) inches beyond the back of curb.
- (d) *Depth*. The subgrade shall have a minimum depth of twelve (12) inches across its entire width.
- (e) *Alternate construction*. In lieu of the twelve-inch stabilized subgrade, the developer will have the option to install ten (10) inches of lime rock

base. Upon approval of the county engineer, based upon suitable tests from a certified engineering testing laboratory, six (6) inches of lime rock base may be sufficient.

- (f) *Care of subgrade.* Trucks will be allowed on finished subgrade to dump the base course, but the contractor will be required to level out ruts before placing base course on them. In the event the trucks cause too much damage to the subgrade, the county engineer or Inspector may require dumping, spreading and hauling on the base course.
- (g) *Installation of utilities.* In the process of construction of the subgrade, prior to compaction, and before any base material is applied, all underground work for water mains, sanitary sewers, storm sewers, electric power conduits and any other utility including all service connections shall be installed completely and approved through the width of the road to a point at least two (2) feet outside of the back of curb or edge of shoulder. All underground improvements so installed for the purpose of future service connection shall be properly capped and back-filled.
- (h) *Testing.* At least one test location in each block of a street, or at not more than five hundred (500) feet intervals, whichever results in the most tests, for width, depth, density and bearing, is required.

D.2.1.6. Roadway base.

- (a) *Material.* Ocala Limerock or Soil Cement b. Construction--It shall be compacted to a density of not less than ninety-eight (98) percent of the density as determined by AASHO Method T 180.
- (b) *Width.* All base shall be one (1) foot wider (six (6) inch each side) than the finished surface. No form boards will be required unless, in the opinion of the inspector or engineer, the contractor is not taking precautions to obtain the full depth at the edge.
- (c) *Depth.* Six (6) inches
- (d) *Prime coat.* Prime coat shall be applied to all base courses and sand sealed.
- (e) (Reserved for alternate construction)

- (f) (Reserved for care of base during construction)
- (g) *Testing.* At least one test location in each block of a street, or at not more than five hundred (500) feet intervals, whichever results in the most tests, for width, depth, density, bearing and cross slope.

D.2.1.7. Roadway shoulder.

- (a) *Material.* The top six (6) inches of the roadway shoulders shall be constructed of material having a minimum bearing value of forty (40) L.B.R. (Limerock Bearing Ratio).
- (b) *Density.* It shall be compacted to a density of not less than ninety-eight (98) percent of the density as determined by AASHO Method T 180.

D.2.1.8. Pavement.

- (a) *Material.* Asphaltic concrete Type 2 (minimum thickness = 1 1/4 inches). Other surfaces of equal stability and wearability are acceptable if approved by the county's director of public works and county engineer.
- (b) *Testing.* At least one (1) test location in each block of a street, or at not more than five hundred (500) feet intervals, whichever results in the most tests, for width, depth, density and cross slope.
- (c) *Reflectors.* Pavement reflectors for the night time location of fire hydrants shall be installed by the developer on all roads in a non-exempt subdivision. Such markers shall be located opposite the hydrant, in the middle of the lane nearest the hydrant.

D.2.1.9. Curb and gutter.

- (a) *Type.* Standard non barrier type curb and gutter or Miami Curb allowed.
- (b) *Material.* Concrete shall have a minimum compressive strength of three thousand (3,000) psi, unless noted otherwise.
- (c) *Testing.* For concrete compressive strength.

D.2.1.10. Sidewalks.

- (a) *Width/depth.* The sidewalks required by this chapter shall be at least four (4) feet in width and four (4) inches deep and constructed of concrete, except that the commission may permit the installation of walkways constructed of other suitable materials when it concludes that:
 - (1) Such walkways would serve the residents of the development as adequately as concrete sidewalks; and
 - (2) Such walkways would be more environmentally desirable or more in keeping with the overall design of the development.

D.2.1.11. Street identification. Street name markers which meet county specifications shall be installed at all street intersections.

D.2.1.12. Bridges.

- (a) *Specifications.* Materials and methods of construction shall conform to the current Florida Department of Transportation Standard Specifications for Road and Bridge Construction.
- (b) *Materials.* Bridges shall be constructed of pre-cast concrete, pre-stressed concrete, cast-in-place concrete, or composite concrete-steel. Steel, timber, or other materials may be used for bridge construction if the use of such materials is consistent with good engineering practice and approved by the county engineer.
- (c) *Safety provisions.* Bridges shall be constructed with curbs and in addition, sidewalks may be required if the situation requires them. Approach guard rails or fences shall be provided where required for safety. The need for sidewalks and/or guard rails or fences shall be determined by the commission.

D.2.2. (Reserved for operation and maintenance)

(Ord. No. 96-23, § 9, 12-16-96)

Sec. D.3. Subdivision standards.

D.3.1. Construction.

D.3.1.1. Block standards.

- (a) *Survey markers.*

- (1) Permanent reference monuments (PRMs) shall be set as required by Chapter 177, Part 1, F.S.
- (2) Permanent control points (PCPs) shall be set as required by Chapter 177, Part 1, F.S.

D.3.1.2. Lot/parcel standards.

- (a) *Lot corners.* All lot corners in non-exempt subdivisions shall be accurately marked by a surveyor with minimum 1/2-inch I.D. iron pipe or 5/8-inch rods, at least two (2) feet long; or four (4) inch concrete markers at least two (2) feet long.

D.3.2. Operation and maintenance.

D.3.2.1. Private improvements in non-exempt subdivision.

- (a) *Homeowners association.* A homeowners association, or similar legal entity, that, pursuant to other sections of this chapter, is established to be responsible for the maintenance and control of roadways, utilities, drainage, common open space and other facilities shall be established in such a manner that:
 - (1) Provision for the establishment of the association or similar entity is made before any lot in the development is sold or any building occupied.
 - (2) The association or similar legal entity has clear legal authority to maintain and exercise control over such facilities.
 - (3) The association or similar legal entity has the power to compel contributions from the residents of the development to cover their proportionate shares of the costs associated with the maintenance and operation of such facilities.
 - (4) The incorporation document shall institute a system of representative government by the assembly of the owners maintaining prerogatives for the developer greater than that of the owners only during the period of sale. The document shall:
 - a. Set standards for construction and maintenance on private lots;

- b. Provide for maintenance on public tracts;

(Ord. No. 96-23, § 9, 12-16-96)

Sec. D.4. On-site traffic circulation and accommodation standards.

D.4.1. (Reserved for construction).

D.4.2. Operation and maintenance.

D.4.2.1. Unsubdivided development. All streets, drives, parking areas and other traffic circulation elements that are required site improvements in unsubdivided residential and non-residential development shall be owned and maintained by the developer or his successor or assigns.

D.4.2.2. Vehicle accommodation area surfaces. All off-street parking areas shall be well maintained as long as the use exists for which the facilities are required. Areas shall be kept free of potholes, debris, weeds, broken curbs and broken wheel stops. Paved areas shall be clearly striped. All lighting shall be kept in working condition.

(Ord. No. 96-23, § 9, 12-16-96)

Sec. D.5. Utilities standards.

D.5.1. Construction.

D.5.1.1. General.

- (a) *As-built drawings.* Whenever a developer installs or causes to be installed any utility line in any existing or proposed public right-of-way, the developer shall, as soon as practical after installation is complete, and before acceptance of any water or sewer lines, furnish the director with "as built plans", certified by an engineer, that show the exact location of such utility lines. Compliance with this requirement shall be a condition of the continued validity of the permit authorizing such development.

- (b) *Utility easements.* These easements shall be restored to pre-construction or better conditions subsequent to the installation of utilities.

D.5.1.2. Water systems.

(a) *(Reserved for standard requirements)*

(b) *Fire protection requirements.*

(1) Hydrants/fire flows.

- a. The county engineer, in consultation with the fire chief, shall determine the precise location of all fire hydrants, subject to other provisions of this section.
- b. The county engineer, in consultation with the fire chief, shall determine the design standards of all hydrants based on fire flow needs. Unless otherwise specified, all fire hydrants shall have two (2) 2-1/2-inch hose connections and one (1) 4-1/2--inch hose connection. The 2-1/2-inch hose connections shall be located at least twenty-one (21) inches from ground level. All hydrants threads shall be national standard threads.
- c. Water lines that serve fire hydrants shall meet the following requirements:
 1. Must be at least six (6) inches in diameter.
 2. Must provide not less than one-thousand (1,000) gallons per minute water flow at any single hydrant simultaneous with peak system water demand, with a residual system pressure of not less than twenty (20) psi. More flow may be required when appropriate. The attainment of these levels must be demonstrated by pressure testing or computer modeling.
 3. Unless no other practical alternative is available, no such line shall be a dead-end line.
- d. When required, standpipes shall be fitted with a 2-1/2-inch National Fire Thread connections and their locations shall be determined during the development review process.

D.5.1.3. (Reserved for sanitary sewer systems).

D.5.2. (Reserved for operation and maintenance).

(Ord. No. 96-23, § 9, 12-16-96)

Sec. D.6. Drainage and storm water management standards.

D.6.1. Construction.

D.6.1.1. Grading and drainage. Where grading and shaping is required for drainage, it shall be done according to the approved plan and the following:

(a) *Drainage pipe.* Where methods of drainage using pipe are required, the following standards apply:

(1) Storm sewer pipe.

a. Acceptable types--Reinforced concrete, galvanized corrugated metal or corrugated aluminum.

b. Minimum size--Eighteen (18) inches or equal.

c.; Inlet or manhole required at each change of alignment or grade.

(b) *Headwalls.* Shall be constructed of concrete or sand-cement rip rap (5:1 mix approved bags)

(c) *Inlets.* Meet DOT specs.

(d) *Manholes.* Meet DOT specs.

(e) *Erosion control.*

(1) *Grassing and mulching.* Required on all disturbed areas where sodding is not required. Also required on lot line swales where the grade does not exceed three (3) percent.

(2) *Sodding.* Required on all drainage ditches and lot line swales where the grade exceeds three (3) percent.

(3) (Reserved for construction details for drainage swales, curbs and gutters, and storm drains).

D.6.2. Operation and maintenance.

D.6.2.1. For unsubdivided development. All ownership and maintenance responsibility of drainage and storm water management facilities shall remain private. Failure to properly maintain such facilities as approved shall constitute a violation of this chapter.

D.6.2.2. For subdivided development.

(a) *Private responsibility.* All ownership and maintenance responsibility of drainage and storm water management facilities outside of state or county maintained road right-of-ways shall remain private, unless such responsibility is specifically accepted by the state or commission respectively.

(1) All privately maintained drainage and storm water management facilities, excepting conveyance swales, and the land upon which such elements lay, shall be dedicated to the public and become the responsibility of a homeowners association, or similar legal entity, established pursuant to section 13-553.

(2) Parcels so dedicated shall be designated for such use and of regular and sufficient size to provide for mechanized maintenance (equipment operations) of same. Such areas shall not be part of lots or parcels planned for development, but shall be identified on the development plat as tracts dedicated to the public for drainage purposes.

(3) Failure to properly maintain such facilities as approved shall constitute a violation of this chapter

(b) *(Reserved for county/state responsibility).*

D.6.2.3. Waterways. The developer will be required to make adequate provision for the private maintenance of waterways. Such provision shall include the designation of a entity who shall be financially responsible for such maintenance. If required, agreements to provide private maintenance of water ways shall be submitted with other applicable application materials.

(Ord. No. 96-23, § 9, 12-16-96)

Sec. D.7. Floodplain and floodway overlay zones standards.

D.7.1. Construction.

D.7.1.1. Certification of floor elevation or flood proofing elevation. Upon placement of the lowest floor, or flood-proofing by whatever construction means, and before further construction above the base flood elevation occurs, it shall be the duty of the permit holder to submit to the Building Official a certification, on approved FEMA certification form, of the elevation of the lowest floor or the flood-proofed elevation, whichever is applicable, as constructed, in relation to mean sea level. Said floor elevation certification shall be prepared by or under the direct supervision of a surveyor or engineer and certified by same. When flood-proofing is utilized for a particular building, said flood proofing certification shall be prepared by or under the direct supervision of an engineer or architect and certified by same. Any work undertaken prior to submission of the certification shall be at the permit holder's risk. The building official shall review the certification submitted and deficiencies detected by such review shall be corrected by the permit holder immediately and prior to further progressive work being permitted to proceed. Failure to submit the survey or failure to make said corrections required hereby, shall be cause to issue a stop-work order for the project.

D.7.2. (Reserved for operation and maintenance).

(Ord. No. 96-23, § 9, 12-16-96)

Sec. D.8. Setback and buffer standards.

D.8.1. Construction.

D.8.1.1. Screening materials/installation.

- (a) *General.* Screening may be composed of walls, landscaped earth berms, planted vegetation, existing vegetation, or a combination thereof, except that walls for Type A screening shall be of masonry construction at least eight (8) inches thick.
- (b) *Vegetation screens.*
 - (1) Compliance of planted vegetative screens or natural vegetation will be judged on the basis of the average mature height and density of foliage of the subject species, or field observation of existing vegetation. The

opaqueness requirements specified herein must be met in all seasons of the year

- (2) Preservation and protection of existing native species of plant materials is strongly encouraged. Where opacity requirements result in the need for additional trees or shrubs in an existing natural area, there shall be a minimum disturbance to native species.
- (3) Xeriscape principals utilizing drought resistant plants and horticulture methods are encouraged wherever a vegetative screen is constructed.
- (4) Vegetative screening should be used to minimize potential erosion through the use of plant materials which aid in soil stabilization.
- (5) All vegetation required to be planted shall meet the following standards:
 1. All plants should be Florida Grade No. 1 or better in accordance with Grades and Standards for Nursery Plants (GSPN), published by the State of Florida, Department of Agriculture and Consumer Services. Nursery stock shall meet the minimum requirements of the American Standards For Nursery Stock (ASNS), published by the American Association of Nurserymen, Inc.
 2. Plants shall be sound, healthy, vigorous, free from mutilation, plant diseases, insect pests or their eggs, and fungus and have healthy, normal root systems. Plants shall be nursery grown stock in containers or freshly dug, balled and burlapped.
 3. Shrubs and other vegetation, when planted, shall be of a height and spacing sufficient to meet the opacity requirements of this section. Compliance of planted vegetative screens or natural vegetation will be judged on the basis of the average mature height

and density of foliage of the
subject species, or field
observation of existing vegetation.

- (6) Installation of all vegetative screens shall conform to standard acceptable horticultural practice, including watering and fertilizing until firmly established and meeting the height and opacity requirements of this section.
- (7) Slopes of berms used in conjunction with vegetative screening shall not exceed 3:1 and shall be completely covered with ground cover or vegetation.

(c) *Manmade screens:*

- (1) Masonry walls shall be constructed to equal or exceed the building code requirements for structures.
- (2) Wooden or metal fences shall be of durable materials and substantial construction.

D.8.2. Maintenance. Maintenance of all required screening shall be the responsibility of the property owner. Failure to maintain plantings and other features of required screening in an attractive and healthy state with the required height and opacity shall be considered a violation of this chapter.

(Ord. No. 96-23, § 9, 12-16-96)

Sec. D.9. Recreation and open space standards.

D.9.1. (Reserved for construction)

D.9.2. Operation and maintenance.

D.9.2.1. The person or entity having the ownership or control over the open space shall be responsible for its continuing upkeep and proper maintenance. Such person or entity shall have a program for the provision, maintenance, and operation of all such areas, improvements and facilities for the common use of the PUD occupants which will not be provided, operated or maintained at general public expense.

(Ord. No. 96-23, § 9, 12-16-96)

Sec. D.10. Resource protection standards.

D.10.1. (Reserved for construction).

D.10.2. (Reserved for operation and maintenance).

Sec. D.11. Safety and nuisance standards.

D.11.1. (Reserved for construction).

D.11.2. (Reserved for operation and maintenance).

(Ord. No. 96-23, § 9, 12-16-96)